PATENT
Attorney Docket No. 401585/BRAUN

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

ULRICH JOOS

Application No. Unassigned

Filed: March 14, 2002

For: SCREW-TYPE INTRAOSSEOUS
DENTAL IMPLANT

Art Unit: Unassigned

Examiner: Unassigned
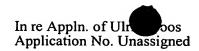
PENDING CLAIMS AFTER ENTRY OF PRELIMINARY AMENDMENT
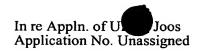
1.   A dental implant comprising:

a)   a bottommost implant tip located at an apex;

b)   a root part which extends to the implant tip (1), is intended to be fitted in a jawbone, and has a parabolic outer contour with the implant tip as vertex;

c)   an implant neck adjoining the root part, which extends in the coronal direction and is intended to lie inside the gingiva; and

d)   an outer thread provided on the root part, wherein

e) the root part has the parabolic outer contour along its entire length (l_{max}) and as far as a theoretical ridge line at which it adjoins the implant neck.

2.   The dental implant as claimed in claim 1, wherein

a)   the outer thread provided on the root part has an outer contour extending parallel to the parabolic outer contour of the root part, and

b)   ends at a distance of 1 mm to 4 mm from the ridge line.

3.   The dental implant as claimed in claim 1, wherein

a)   the root part at the ridge line has a maximum radius (r_{max}) extending in the radial x-direction;

b)   the parabolic outer contour, placed in a cartesian system of x-y coordinates, with the implant tip positioned at the origin, follows the equation $l_y = K \cdot 4r_x^2$, where

c) l_y represents the respective ordinate value and r_x represents the associated abscissa value; and

d)   the constant (K) results from the equation:

$K = l_{max} : 4r_{max}^2$.

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4. The dental implant as claimed in claim 3, wherein the maximum radius (r_{max}) is between 1 mm and 3 mm,

5. The dental implant as claimed in claim 1, wherein
a) the outer thread is self-cutting;
b) the length (l_{max}) of the root part correlates with a pitch (S) of the outer thread;
c) the outer thread ends at a distance, in the range of from 1 mm to 4 mm, from the ridge line; with
d) the distance being greater as the length (l_{max}) of the root part increases.

6. The dental implant as claimed in claim 5, wherein the length (l_{max}) of the root part and the pitch (S) of the outer thread, given a maximum radius (r_{max}) = 2 mm, correlate with one another as follows:

Length (l_{max})of root part (2) [mm]	Pitch (S) [mm]
6	0.65
8	1
10	1
14	1
16	1

7. The dental implant as claimed in claim 1, wherein the outer thread includes thread teeth,
a) the thread teeth at the root part extend in the y- direction, and have a height (g_h) of about 0.3 mm; and
b) the thread teeth in the x-direction, have a length (g_l) in the range of from 0.25 mm to 0.5 mm.

8. The dental implant as claimed in claim 7, wherein
a) the maximum radius is 2 mm;
b) the length (g_l) of the thread teeth decreases as the length (l_{max}) of the root part (2) increases; and
c) the outer thread with its thread teeth has the following values:

Length (l_{max}) of root part [mm]	Height (g_h) of thread teeth [mm]	Length (g_l) of thread teeth [mm]
6	0.3	0.4
8	0.3	0.4
10	0.3	0.3
14	0.3	0.25
16	0.3	0.25

9.   The dental implant as claimed in claim 1, wherein

a)   the implant is made of biocompatible material; and

b)   the root part has a rough surface which is plasma-coated or ceramic-coated or is treated chemically, electrochemically, mechanically or by laser.

10.   The dental implant as claimed in claim 1, wherein the implant neck

a)   is made of titanium, a titanium-based alloy or another biocompatible metal or its alloy and is polished; or

b)   is coated with ceramic, glass ceramic, ceramic-like material, hydroxyapatite, plastic or metal.

11.   The dental implant as claimed in claim 1, wherein

a)   measured in the y-direction, the implant neck has a height (h) in the range of from 1 mm to 3 mm; and

b)   the implant neck is cylindrical or is widened or narrowed in a trumpet shape or conically in the coronal direction.

12.   The dental implant as claimed in claim 4, wherein the maximum radius is from about 1.5 mm to about 2 mm.

13.   The dental implant as claimed in claim 9, wherein the biocompatible material comprises titanium-based alloys, metals, metal alloys, ceramic, glass ceramic, ceramic-like material or plastic.